Specimens were exhibited by Dr. Balfour of Mentha rotundifolia, var. velutina, in flower, and of Pyrus pinnatifida in fruit, from the island of Arran.

Mr. James M'Nab exhibited specimens of Ardisia crenulata, from the Horticultural Society's Garden, in which the seeds had germinated within the berries while hanging on the plant.

## ZOOLOGICAL SOCIETY.

July 22, 1845.—Harpur Gamble, Esq., M.D., in the Chair.

Mr. Gould exhibited to the Meeting three new species of Birds from Australia:—

Strix tenebricosus. Str. disco faciali fuliginoso-griseo, circum oculos multo saturatiore; corpore superiore fusco-nigro purpureo splendente, singulis autem plumis maculd albd ad apicem ornatis; alis cauddque ejusdem coloris sed pallidioribus; corpore inferiore

fusco-nigro, stramineo lavato.

Facial disk sooty grey, becoming much deeper round the eyes; upper surface brownish black, with purplish reflections and with a spot of white near the tip of each feather; wings and tail of the same hue, but paler; the feathers of a uniform tint, without bars; tail-feathers faintly freckled with narrow bars of white; under surface brownish black, washed with buff, and with the white marks much less decided; legs mottled brown and white; irides dark brown; bill horn-colour; feet yellowish.

Total length, 16 inches; bill,  $1\frac{3}{4}$ ; wing, 12; tail,  $5\frac{1}{2}$ ; tarsi, 3. Hab. The brushes of the river Clarence, in New South Wales.

Colluricingla rufogaster. Col. omni corpore superiore, alis, caudaque olivaceo-brunneis; gula pallide stramineo-alba fusco-

striatá; corpore inferiore ferrugineo-rufo.

All the upper surface, wings and tail olive-brown, with the exception of the inner webs of the primaries, which are dark brown; throat pale buffy white, streaked with brown; all the under surface rusty red; irides black; bill and feet fleshy-brown.

Total length,  $7\frac{1}{2}$  inches; bill,  $1\frac{1}{8}$ ; wing,  $3\frac{3}{4}$ ; tail,  $3\frac{1}{2}$ ; tarsi,  $1\frac{1}{8}$ . Hab. The brushes of the Clarence River, in New South Wales.

Donacola flaviprymna. Don. capite cervino; dorso alisque castaneo-brunneis; corpore inferiore stramineo; tectricibus caudæ superioribus cerinis; tectricibus caudæ inferioribus nigris.

Head pale fawn colour; back and wings light chestnut-brown; under surface buff; upper tail-coverts wax-yellow; under tail-coverts black; tail brown.

Total length,  $4\frac{1}{2}$  inches; bill,  $\frac{1}{2}$ ; wing,  $2\frac{1}{4}$ ; tail,  $1\frac{3}{4}$ ; tarsi,  $\frac{3}{4}$ . Hab. The north coast of Australia.

Prof. Owen communicated his observations on the living *Echidna* exhibited at the Menagerie of the Society in May 1845. The animal when received at the Gardens was active and apparently in sound health. It was placed in a large but shallow box, with a deep layer

of sand on one half of the bottom; the top covered with close crossbars. The animal manifested more vivacity than might have been expected from a quadruped which, in the proportions of its limbs to the body, as well as in its internal organization, makes the nearest approach, after the Ornithorhynchus, to the Reptilia. In the act of walking, which was a kind of waddling gait, the body was alternately bent from one side to the other, the belly was lifted entirely off the ground, and the legs, though not so perpendicular as in higher mammals, were less bent outwards than in Lizards. The broad and short fore-paws were turned rather inwards; the hind-feet had their claws bent outwards and backwards, resting on the inner border of the sole. The animal was a male, and the tarsal spur, smaller and sharper than in the Ornithorhynchus, projected backwards and outwards, almost hidden by the surrounding coarse and close hair. The small eyes gleamed clear and dark; the ball was sensibly retracted when the animal winked, which it did frequently. It commenced an active exploration of its prison soon after it was encaged: the first instinctive action was to seek its ordinary shelter in the earth, and it turned up the sand rapidly by throwing it aside with strong strokes of its powerful fossorial paws, and repeating the act in many places, until it had assured itself that the same hard impenetrable bottom everywhere opposed its progress downwards. The animal then began to explore every fissure and cranny, poking its long and slender nose into each crevice and hole, and through the interspaces of the crossbars above. To reach these it had to raise itself almost upright, and often overbalanced itself, falling on its back, and recovering its legs by performing a summerset. I watched these attempts of the animal to escape for more than an hour, and it was not until it had got experience of the strength of its prison, that the Echidna began to notice the food which had been placed there.

This consisted of a saucer of bread and milk and some mealworms. The milk was sucked or rather licked in by rapid protrusion and retraction of the long red cylindrical tongue. The tongue came more than once in contact with the larvæ, which were sometimes rolled over by it, but no attempt was made to swallow them.

The moist dark end of the nose felt cold to the touch. The temperature of the animal at the cloaca was 85° Fahr., or nearly ten

degrees lower than that of the anus of a rabbit.

The Echidna offered little resistance when seized by the hind-leg and lifted off the ground, and made not the slightest demonstration of defending himself by striking with his hind spurs: the only action when irritated was to roll itself into a ball, like a hedgehog—the bristles being then erect. This was the position chosen for sleep; but our Echidna showed little of that sluggishness which the French naturalists ascribe to their live specimen on ship-board (Voyage de la Favorite, p. 159).

The blood-discs manifested the true mammalian type in their number, size and form: they were flat, circular, averaging  $\frac{1}{3200}$ th of an inch diameter; a few large ones were rather less than  $\frac{1}{3000}$ th; the

smallest was  $\frac{1}{3500}$ th.

The circular form of the blood-discs of the Echidna was noticed by Dr. John Davy in some blood of that animal which had been transmitted to him in brine from Van Diemen's Land. More satisfactory observations had been made by Dr. Hobson and Mr. E. Bedford, on the recent blood of both the Ornithorhynchus and Echidna. I have cited these observations in my article 'Monotremata' (Cyclop. of Nat. Hist.); they show that the blood-discs of the Ornithorhynchus are likewise discoid, circular, and about  $\frac{1}{3000}$ th of an inch in diameter; and the observations now made on both ovoviviparous genera demonstrate that the Monotremata resemble the other Mammalia in the form, proportional number, and florid colour of the blood-discs, which correspond in size with those of the Armadillo and the Quadrumana, but are larger in proportion to the size and weight of the body than in the larger apes and the human species.

The Echidna having died unexpectedly a short time after its arrival, has afforded a favourable opportunity of investigating certain obscure parts of its anatomy, the results of which Prof. Owen would

communicate at some future opportunity.

Prof. Owen next exhibited the skull of a Wombat (Phascolomys Vombatus, Auct.) from Van Diemen's Land, and the skull of a Wombat, transmitted by Governor Grey, from Continental (South) Australia, and pointed out the following differences in proof of their specific distinction. They are of equal size, but the skull of the specimen from South Australia is broader in proportion to its length. continental species, which he proposed to call Phascolomys latifrons, the upper incisors present a transverse semi-oval section, the convex enamelled surface being directed forwards and outwards. This surface is feebly striated longitudinally. The lower incisors are narrower than in Phase. Vombatus, and triedral, the enamelled anterior or under surface is flat, the outer surface longitudinally impressed and almost devoid of enamel. The first lower molar (premolar) is relatively larger, the last relatively smaller, in Phase. latifrons: the symphysis of the jaw is narrower and deeper. The intermaxillary part of the skull is higher in proportion to its width, less convex externally; the nasal bones are relatively broader, forming the whole upper surface of the anterior third of the skull. The inter-orbital part of the skull is relatively much broader, and is produced on each side into a well-marked supra-orbital ridge and post-orbital process, both of which are almost obsolete in Phase. Vombatus. The temporal fossæ are not bounded, as in *Phase*. Vombatus, by two nearly parallel and remote longitudinal ridges, but are continued by a convex, rather irregular tract, to near the middle of the upper region of the cranium. A very remarkable feature in the skull of the Phase. latifrons is the supra-tympanic cell excavated beneath the base of the zygoma: this cell, in Phasc. Vombatus, is transversely oblong, simple, one inch by half an inch in size; in Phase. latifrons it extends inwards one inch and a quarter, and expands to an antero-posterior diameter of one inch and a half, and a vertical diameter of one inch, having an oblong outlet one inch

in length and half an inch in depth, slightly contracted in the middle. This difference in the size of the supra-tympanic cell is obviously not the effect of age, as the skull of the *Phasc. Vombatus* compared is that of an old animal with strong temporal ridges. In *Phasc. latifrons* the articular surface for the condyle of the lower jaw is broader and less convex; the anterior boundary of the zygomatic space is less angular; the palatal surface of the intermaxillaries is deeper; the curve of the lower border of the lower jaw is much deeper; the inner angle of the condyle is less produced; the coronoid process is higher and narrower, and the post-symphysial depression is almost obsolete.

The Secretary saw with much pleasure the decisive proofs which Professor Owen had shown of the existence of two species of Wombat; he had many years before been himself convinced of the fact, having observed that they differed in size and colour, and that one had a sharp prick ear, while the ear of the other was low and elliptical.

August 12.—William Yarrell, Esq., Vice-President, in the Chair.

"Descriptions of new species of Murex," by Lovell Reeve, Esq.:—
Murex bipinnatus. Mur. testa elongato-fusiformi, spira acuminato-turrita; anfractibus septem, transversim eximiè liratis et elevato-striatis, liris striis interstitiisque subtilissime scabroso-crenulatis; anfractibus primis sex tuberculato-nodosis, ultimo trivaricoso, varicibus ultimis duobus pulcherrime fimbriato-pinnatis; nivea, rosaceo tincta, columella pallide rosea; apertura parva, labri externi limbo minute denticulato; canali latiusculo, subelongato.

Hab. ---?

The Murex bipinnatus approaches the Murex clavus in general form, but the detail of structure and sculpture is distinct throughout. The spire exhibits a mass of prominent nodules, each whorl taking the form of a heptagon, with as many as seven on its circumference. The last two varices are ornamented with a handsome laminated frill structure.

Murex sinensis. Mur. testa elongato-ovata, subfusiformi, tenui, spiræ suturis subimpressis; anfractibus transversim liratis et striatis, inter varices nodiferis; trifariam varicosa, varicibus frondosis, frondibus regularibus, curvatis, pulcherrime floridis, incisoserratis; albicante, fusco tincta, lineis transversis fuscis; labro infra medium fortiter erecto-dentato.

Hab. China.

This species appears to have been confounded for some time past with the young of the *Murex ramosus* or *elongatus*. It is uniformly of a thin structure, and the fronds are of a delicate open flowery growth.

Murex Steerie. Mur. testá abbreviato-fusiformi, crassa, transversim granoso-lirata, inter varices fortiter tuberculata; trifariam varicosa, varicibus incrassatis, frondosis, frondibus crispatoramosis, subcompressis, breviusculis, fronde parva interveniente,

fusca liris nigricantibus, frondibus purpureo-roseis, columella et aperturæ fauce albis, labro externo incrassato, intus denticulato: canali breviusculo.

Hab. ——?

This shell might easily be mistaken for an accidental stunted growth of the Murex palma-rosæ, were it not for the constancy and marked peculiarity of its characters. The fronds are short and somewhat erect, with a row of small fronds sprouting up at their base; they are also laterally pinched as it were, and do not spread in the same flowery bifurcate manner as in the Murex palma-rosæ.

Murex rubiginosus. Mur. testá fusiformi, interdum subabbreviatá. transversim granoso-liratá et striatá, inter varices fortiter tuberculatá; trifariam varicosá, varicibus frondosis, frondibus foliaceis, brevibus, alternis parvis, recumbentibus; rubiginosa, liris frondibusque nigricante-fuscis; columella rubiginoso-luted, aperturæ fauce alba.

Hab. Philippine Islands; Cuming.

This shell, of which I have seen several characteristic specimens, is quite distinct from any hitherto described.

Murex crassivaricosa. Mur. testâ subabbreviato-fusiformi, crassiusculd, transversim granoso-liratd et striatd; trifariam varicosd, varicibus incrassatis, rotundatis, frondosis, frondibus parvis, foliaceis, alternis minoribus; livido-ferruginea, aperturæ fauce alba.

Hab. —?

A new species, of which I have seen several examples, distinguished amongst other characters by the stunted thickened growth of the varices.

Murex oculatus. Mur. testa fusiformi-oblonga, crassiuscula, undique leviter scabrosd, transversim liratd et striatd, inter varices bituberculata; trifariam varicosa, varicibus lamellis brevibus subcomplicatis tuberculatis; albidá, rufo-fuscescente tinctá, varicibus maculis quadratis rubentibus alternatim pictis, columella rubentelutea, aperturæ fauce alba, labro nigerrimo-fusco, supernè præcipuè, maculato, apice rubente; canali breviusculo, compresso, recurvo. refulle from the

Hab. -

Although this shell has so many characters in common with the Murex pomum, it exhibits a constant peculiarity of colour, form and sculpture. In colour it is peculiarly tinged and spotted with red; in form it is more graceful and slender, and in sculpture it is smoother and presents two tubercles between each varix. I have seen numerous examples of this species, and can distinguish them at a glance from the Murex pomum.

Murex alabaster. Mur. testâ trigono-fusiformi, spiræ testæ longitudinem æquante, anfractibus transversim liratis et striatis, liris lævibus, supernè angulatis, nodulis duobus tribusve subconspicuis ad angulum armatis; trifariam varicosa, varicibus laminato-alatis, tuberculo erecto profunde canaliculato ad angulum munitis; intus extusque eburned; canali breviusculo.

Hab. Island of Cagayan, province of Misamis, island of Mindanao,

Philippines (found on the beach); Cuming.

Mr. Sowerby referred this extraordinary shell with some doubt to the *Murex acanthropterus*; its proportions are however so utterly different that I have no hesitation in describing it as a new species.

Murex ambiguus. Mur. testà globosa, subpyriformi, transversim lirata, liris irregularibus erectis, interruptis; octofariam varicosa, varicibus frondosis, frondibus alternis vel paucioribus elato-ramosis, spinosis, basalibus longioribus; alba, frondibus lirisque aterrimis, labri columellari parte superiori nigro tincta; canali breviusculo.

Hab. ----?

Three species appear to have been confounded hitherto under the common title of Murex radix, which, though closely approximating, may be separated without difficulty with a little careful discrimination. The true Murex radix is a round, particularly solid, heavy shell, with a short though sharply acuminated spire with never less than ten varices, in which the fronds are numerous, somewhat laterally compressed, comparatively short and sharp-pointed. The species described by Dr. Philippi under the title of Murex nigritus has but eight or nine varices, and the fronds are not branched; those on the upper angle of the whorl being tubercularly squamate, those in the middle flat and very obscure, whilst those at the base are long and horn-shaped. In the species under consideration the shell is of somewhat light structure, and the fronds are large, open and flowery.

Murex triformis. Mur. testá trigono-ovatá, crassiusculá, transversim liratá et corrugatá, tuberculis duodus aut pluribus inter varices; trifariam varicosá, varicibus laminato-fimbriatis, supernè excavato-sinuatis; ferrugineo-fuscá; aperturá ovatá, supernè sinuatá.

Hab. New Holland.

This shell, which Mr. Sowerby thought to be a variety of the Murex acanthropterus, is of a rude solid structure and dark rusty brown colour.

Murex pellucidus. Mur. testa trigono-fusiformi, tenui, transversim lirata, pulcherrime squamata, inter varices tuberculata; trivaricosa, varicibus obliquis, latissime et eximie alatis; pellucidoalba; apertura parva, labro intus nodoso.

Hab. Island of Bantayan, Philippines (found upon a coral bottom

at the depth of seven fathoms); Cuming.

Mr. Sowerby has rather incautiously referred this shell to the Murex trigonularis of Lamarck, which Mr. Gray considers to be merely a worn specimen of the Murex acanthropterus, and M. Kiener one of the Murex phyllopterus. The shell under consideration differs essentially from both of these, and the characters which it presents are not at all in accordance with Lamarck's description of Murex trigonularis.

Murex osseus. Mur. testa oblongo-ovata, subfusiformi, lavius-

culd, inter varices fortiter tuberculatá; trivaricosd, varicibus fimbriato-laminatis, superne falcatis; albd, castaneo-fusco hic illic tinctd; aperturá peculiariter parvá, ovatá.

Hab. ——?

Murex pinniger is perhaps the nearest allied species to this, though of very different form.

Murex gambiensis. Mur. testa fusiformi, infernè attenuata, solidiuscula, transversim obsoletè striata, tuberculo magno prominulo inter varices; trivaricosa, varicibus plicato-laminatis, supernè falcatis, ad basim alatis; alba, fusco hic illic punctata; apertura parva, canali longiusculo.

Also allied to the Murex pinniger, but of a more elongated form

and different style of colouring.

Murex Martinianus. Mur. testa trigono-clavæformi, transversim lirata, liris nodulosis, inæqualibus; trifariam varicosa, varicibus rarispinosis, spinis breviusculis; luteo- vel griseo-cærulescente, canali fuscescente; aperturâ ovata, labro dente planulato, erecto, munito; canali longissimo, recto, supernè spinoso.

Háb. ——?

This shell was supposed to have been the Murex rarispina of Lamarck, but it having been satisfactorily shown by both Kiener and Deshayes that Mr. Sowerby's Murex formosus is that species, I propose to distinguish it by the above new title.

Murex funiculatus. Mur. testâ clavæformi, transversim liratd, liris ad summitatem funiculatis, costis tribus vel quatuor plicæformibus longitudinalibus inter varices; trivaricosa, varicibus spinosis, spinis brevibus, acutis, sursum inclinatis; fuscescentealba, funiculis transversis castaneis; apertura ovata, columella labroque intus noduliferis; canali elongato.

Hab. ---?

An interesting species, well-characterized by the fine dark chestnut-brown cords with which it is encircled throughout at equal distances.

Murex nigrispinosus. Mur. testá elongato-clavæformi, transversim liratá et striatá, liris inæqualibus, subnodosis, spirá brevius-culá; trifariam varicosá, varicibus spinosis, spinis erecto-clongatis; canali elongato, ad extremitatem leviter recurvo, spinoso, spinis longis, subcurvatis purpurascente-albá, fasciis tribus vel quatuor fuscescentibus subindistincte cingulatá, spinis purpureonigricantibus.

Hab. ——?

This shell approximates to the *Murex tribulus*, but its characters present an agreeable modification throughout, which may be considered of specific importance. The spines are constantly tipped with black.

Murex bellus. Mur. testá clavæformi, transversim liratá, liris tuberculato-nodosis; trivaricosá, varicibus rotundis, tuberculatoliratis, spiná brevi acutá ad basim; albicante, castaneo-fusco supra et infra maculată, liris castaneo conspicue funiculatis, columellă labroque rufo-aurantio tinctis; canali subelongato.

Hab. — ?

Allied to the Murex chrysostoma in respect to its rufous orange mouth, but of a different colour and sculpture throughout.

August 26.—William Horton Lloyd, Esq., in the Chair.

"Remarks on the genus Achatinella, Swainson, and descriptions of six new species from Mr. Cuming's collection." By Dr. L. Pfeiffer.

Upon examining the long series of forms which occur in the vast family of the *Heliceæ*, I have ascertained that there are several groups which Nature herself seems to have characterized as genera, though it would be very difficult to draw out such a generic definition as would exclude all other nearly allied species. One of these natural groups is the genus *Achatinella*, proposed by Swainson in Brandt's Journal, 1828, which appears to be peculiar to the Sandwich Islands, and has been united to the genus *Bulimus* by most recent authors, as by myself in my 'Symbolæ.' However, the greater the number of species we become acquainted with, the more convenient it appears to unite them together as a distinct genus. I may therefore be permitted to give a short account of the species now known.

- 1. ACHATINELLA LUGUBRIS (Turbo), Chemn. Described by Lamarck under the name of Monodonta seminigra, and figured by Swainson in the Zool. Illustr. under the name of A. pica. Of course the name of Chemnitz must be retained.
- 2. Achatinella perversa, Swains. Synon. Helix decora, Fér., t. 155. f. 5—7; Bulimus decorus, Pfr. Symb.
- 3. Achatinella acuta, Swains. Hel. spirizona, Fér., t. 155. f. 14, 15.
  - 4. ACHATINELLA BULIMOIDES, Swains. Hel. lorata, Fér., t. 155. f. 9—11; Bul. loratus, Pfr. Symb.
  - 5. Achatinella Livida, Swains. Hel. vulpina, Fér., t. 155. f. 1, 2; Bul. vulpinus, Pfr. Symb.
  - 6. Achatinella Rosea, Swains. A very distinct species, to which none of Férussac's figures may be referred.
  - 7. ACHATINELLA PULCHERRIMA, Swains. This species might perhaps be considered as a dextrous variety of A. livida.
  - 8. Achatinella turritella (Hel.), Fér., t. 155. f. 13; Bul. turritella, Pfr. Symb.
  - 9. ACHATINELLA TRISTIS (Hel.), Fér. Mus.; Bul. tristis, Pfr. Symb.
  - 10. ACHATINELLA VENTULUS (Hel.), Fér. Mus.; Bul. ventulus, Pfr. Symb.
- 11. Achatinella radiata, Pfr. Ach. testa ovata, solidula, leviter striata, nitida, viridi et luteo radiata, strigis intercurrentibus nigricantibus; spira conica, obtusiuscula; sutura marginata; an-

fractibus  $5\frac{1}{2}$  vix convexiusculis, ultimo spird paulo breviore; columelld dente brevi calloso rubello munitd; aperturd oblongo-ovali; peristomate intus fusco-rubello-labiato.

Long. 19, diam. 10 mill.

Ins. Sandwich. (Mus. Cuming.)

12. ACHATINELLA PICTA, Pfr. Ach. testd sinistrorsa, ovato-elongatâ, striatuld, carned, maculis et flammis nigro-fuscis eleganter pictd; spirâ turritâ, gracili, acutiusculd; suturd simplice; anfractibus 6 convexis, ultimo \(\frac{3}{7}\) longitudinis subæquante; columelld valdè tortd, dente planulato, acutè prominente, albo munitd; aperturd oblongd; peristomate simplice, acuto.

Long. 12½, diam. 7 mill.

Ins. Sandwich. (Mus. Cuming.)

13. Achatinella brevis, Pfr. Ach. testá ovatá, brevi, solidá, obliquè striatulá, nitidá, fuscá; spirá conicá, acutiusculá; anfractibus 6 convexiusculis, ultimo  $\frac{1}{3}$  longitudinis vix superante, subgloboso; columellá breviter arcuatá, acutè dentatá; aperturá rotundato-lunari; peristomate simplice, albo.

Long. 11, diam.  $6\frac{1}{2}$  mill.

Ins. Sandwich. (Mus. Cuming.)

14. Achatinella pyramis, Pfr. Ach. testd ovato-pyramidatd, lævissimè striatd, diaphand, virenti-corned; spirå pyramidatå, apice acuto; suturd lineari, angustè marginatd; anfractibus 8 planis, ultimo \(\frac{3}{8}\) longitudinis subæquante; columelld brevissimè arcuatd, plicd dentiformi complanatd, acutd, munitd; aperturà ovali.

Long. 12, diam.  $5\frac{1}{2}$  mill. Ins. Sandwich. (Mus. Cuming.)

15. ACHATINELLA CLARA, Pfr. Ach. testd oblongâ, longitudinaliter plicatulo-striatâ, pellucida, pallide corned; spira turrita, apice obtuso; sutura linea rufa marginata; anfractibus 8 planiusculis, ultimo \frac{1}{3} longitudinis vix æquante; columella vix arcuata, dente param prominente munita; apertura ovali.

Long. 12, diam.  $4\frac{3}{4}$  mill.

Ins. Sandwich. (Mus. Cuming.)

16. ACHATINELLA CORNEOLA, Pfr. Ach. testd ovato-oblongå, lævissimè striatulå, pellucidå, nitidå, corned; spirå turrito-conicå, apice obtusiusculo; suturå subsimplice; anfractibus 8 planiusculis, ultimo \(\frac{2}{5}\) longitudinis subæquante; columellå valdè arcuatå, dente acutè prominente, albo, complanato instructå; aperturå irregulariter ovali; peristomate intus callo tenui, nitido, albo sublabiato.

Long. 15, diam. 7 mill.

Ins. Sandwich. (Mus. Cuming.)

- 17. ACHATINELLA GRAVIDA (Hel.), Fér., t. 155. f. 3, 4.
- 18. ACHATINELLA LUTEOLA (Hel.), Fér., t. 155. f. 12. These two species I have not been able to find out of the great number of varieties and species I had the opportunity of examining.